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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,759	02/08/2001	Yuki Nakajima	040356/0354	4157

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EXAMINER

GONZALEZ, JULIO C

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/778,759

Applicant(s)

NAKAJIMA, YUKI

Examiner

Julio C. Gonzalez

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8,10,13 and 16-35 is/are pending in the application.
- 4a) Of the above claim(s) 19-34 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-18 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8,10,13 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 19-34 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The claims disclose a different type of magnet position detector by having a detector configured to have a flux concentration on the ends of the plates, ends of the magnets, the magnet pairs positioned to form a single magnetic pole and the magnets being expressed on a circular periphery. Moreover, the new invention discloses that the detector is configured to have a signal that undergoes sharp variations as the plate rotates, a signal with a maximum positive and negative value that faces an end plate corresponding to an end of a magnet and having a 4 and 2 degree magnet rotation. It is not required for a magnet pole detector to have such specific requirements as disclosed by the newly submitted claims, which are directed to a new invention.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 19-34 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 2, 4-8, 10, 13 and 35 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims disclosed that the flux is not directed to the coils of the stator. The specifications are not clear as to how the main flux is not directed towards the coils. Is there a flux barrier around the coils? According to the drawings, specially figure 8, it would seem like if the coils and the stator would received some kind of flux in order to make a complete magnetic field.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 2, 4-8, 10, 13 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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5. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation a magnet pole position detector for a rotor that has a plurality of magnets disposed on a circular periphery, and the claim also recites "and forms a part of an electric motor that has a stator provided with a plurality of coils, the detector comprising" which is the narrower statement of the range/limitation.

In order to advance prosecution in the merits, the Prior Art will be applied as best understood by the examiner.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 2 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagate et al (Patent # 5,864,192) in view of Shinohara et al and Radomski (US 4,959,577).

Nagate et al discloses magnet pole position detector comprising plates 8a of the same number as the magnets 11, three magnetic sensors 16 (see figure 15). The plates been fixed to the rotor and the stator having coils (see figure 14) and a signal based on the flux of the magnetic sensor having a maxima and minima (see figure 33).

However, Nagate et al does not disclose explicitly reducing the leakage flux effect from the winding on a position sensor.

On the other hand, Shinohara et al discloses for the purpose of preventing stator flux changes from affecting the position sensor, thus improve detection precision, winding 19, shield 26, which prevents leakage flux from winding 19 from affecting the sensor 23 (paragraph 0041, lines 1-5).

However, neither Nagate et al nor Shinohara disclose explicitly that a main part of the magnetic flux is not directed to the coils.

On the other hand, Radomski discloses for the purpose of providing an electrical machine with an efficient conversion power output, magnets 54, winding 18 and the main flux of the magnets is not directed to the windings 18 of the stator (column 1, lines 50-55 & column 3, line 67- column 4, line 5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a position sensor as disclosed by Nagate et al and to modify the invention by decreasing the effect of flux from the windings affecting the position sensor for the purpose of preventing stator flux changes from affecting the position sensor, thus improve detection precision as disclosed by Shinohara et al and to not direct the flux to the coils of the stator for the purpose of providing an electrical machine with an efficient conversion power output as disclosed by Radomski.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagate et al, Shinohara et al and Radomski as applied to claim 1 above, and further in view of Masuzawa et al.

The combined position detector discloses all of the elements above. However, the combined position detector does not disclose that the magnets comprise a pair of magnet components that have equal polarity.

On the other hand, Masuzawa et al discloses for the purpose of changing the magnetic fluxes per magnetic pole freely without changing the position that the magnets comprise a pair of magnet components that have equal polarity (see figure 8A).

It would have been obvious to one having ordinary skill in the art to design the combined position detector as disclosed above and to include in each magnet a pair of magnets for the purpose of changing the magnetic fluxes per magnetic pole freely without changing their position as disclosed by Masuzawa et al.

9. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagate et al, Shinohara et al and Radomski as applied to claim 1 above, and further in view of Stephens et al (US 5,773,908).

The combined position detector discloses all of the elements above. However, the combined position detector does not disclose that the plates are fixed to the rotor via a non-magnetic material.

On the other hand, Stephens et al discloses for the purpose of providing an economic and feasible electrical machine, a rotor 106, magnets 156 and the rotor having a non magnetic material 218 (see figure 9).

It would have been obvious to one having ordinary skill in the art to design the combined position detector as disclosed above and to include non magnetic material for the purpose of providing an economic and feasible electrical machine as disclosed by Stephens et al.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagate et al, Shinohara et al and Radomski as applied to claim 1 above, and further in view of ordinary skill in the art.

The combined position detector discloses all of the elements above. The combined position detector discloses the claimed invention except for sensors been apart 30 degrees. It would have been obvious to one having ordinary skill in the art at the time the invention was made to come out with that value, since it has been held that discovering the optimum value of result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

11. Claims 16, 17 and 18 allowed.

Response to Arguments

11. Applicant's arguments with respect to claims 1, 2, 4-8, 10, 13, 16-18 and 35 have been fully considered but are moot in view of new grounds of rejection.

Conclusion

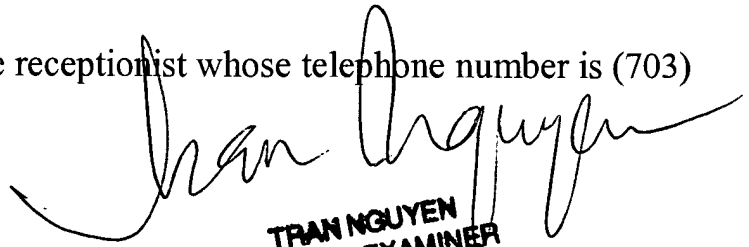
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio C. Gonzalez whose telephone number is (703) 305-1563. The examiner can normally be reached on M-F (8AM-5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Jcg

March 20, 2003


**TRAN NGUYEN
PRIMARY EXAMINER**